

**ABSTRACT**

Adaptive analog equalization. The present invention provides an analog equalization solution that is assured to converge irrespective of the initial conditions of the adaptation. For very high frequency communication applications, including DS3 or E3 line code applications operating at frequencies approaching 45 MHz, the analog adaptive equalization employs double sampling. One of the samples is used to make the decision if a transition actually goes to zero, and the other of the samples is used to drive the adaptation loop to converge. The present invention employs a high pass network and an adaptable gain to control an adaptive analog equalizer structure. There are two different feedback paths to ensure convergence of the present invention. In one embodiment, one feedback path is the gain control feedback path that is provided to the adaptive analog equalizer structure. The other feedback path is provided to a variable gain amplifier. The analog adaptive equalizer structure employs an adaptive equalizer circuitry that has a transfer function that is essentially the inverse of a communication channel from which a signal is provided.